Carlson Geotechnical

A Division of Carlson Testing, Inc.
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June 25, 2013

Emery & Sons Construction
Attn: Mr. Bill Martinak
3831 Fairview Industrial Drive SE
Salem, Oregon 97302

Report of
Infiltration Testing
Phillips Subdivision Phase 3
Quail Run Avenue
Stayton, Oregon

CGT Project Number G1303873

1.0 INTRODUCTION

Carlson Geotechnical (CGT), a division of Carlson Testing, Inc. (CTI), is pleased to submit this report summarizing our infiltration testing for the proposed Phase 3 of the Phillips Subdivision. The site is located directly north of the north terminus of Quail Run Avenue in Stayton, Oregon, as shown on the attached Site Location, Figure 1. We performed our work in accordance with CGT Proposal GP6040, dated June 12, 2013. We received verbal authorization to proceed on June 12, 2013. Written authorization was received from our client on June 18, 2013.

2.0 PROJECT INFORMATION

CGT developed an understanding of the project based on our correspondence with our client. We understand current plans include collecting stormwater from impervious areas of the new development and directing the stormwater to a detention/infiltration swale. The swale will reportedly be located about 200 to 300 feet north of the north terminus of Quail Run Avenue, which is in the general area of Lots 61-62 and 71-72 as shown on the Subdivision Plan prepared by Westech Engineering (Westech) on June 11, 2013. Design of the infiltration swale will rest with others.

3.0 SCOPE OF WORK

Our scope of work included the following:

- Explore subsurface soil conditions at the site by observing the excavation of one test pit excavated to the practical refusal depth of about 6½ feet below ground surface (bgs). The test pit was excavated with a back-hoe provided and operated by our client. Additional details of the test pit are presented in Section 5.1 of this report.
- Perform two infiltration tests at depths of about 3½ feet bgs within two additional test pits excavated by our client. The tests were performed using the open test pit method due to the presence of coarse gravel. Additional details of the test pits and infiltration tests are provided in Sections 5.0 and 7.0 of this report, respectively.
- Classify the materials encountered in the test pits in general accordance with ASTM D2488 (Visual-Manual Procedure). A qualified member of CGT's staff observed and maintained a detailed log of the test pits.
- Provide a site plan showing the location of the test pits relative to existing site features.
- Provide the results of the infiltration testing.
- Provide this written report summarizing the results of our infiltration testing.

4.0 SITE DESCRIPTION

At the time of our field investigation the area of the planned detention/infiltration swale was relatively level and vegetated with grasses, blackberry brush, and deciduous trees. An existing swale was located between about 90 and 210 feet north of the north terminus of Quail Run Avenue. According to our client, this swale serves Phase 1 of the the existing subdivision.

5.0 FIELD EXPLORATION

5.1 Test Pit

CGT observed the excavation of three test pits (TP-1 to TP-3) at the site on June 14, 2013. The test pits were excavated using a Case 580 Super L back-hoe provided and operated by our client. TP-1 was excavated to the practical refusal depth of about 6½ feet bgs. TP-2 and TP-3 were excavated to depths of about 3½ feet bgs. Upon completion of testing, the test pits were loosely backfilled with the excavated materials by our client.

5.2 Soil Classification & Sampling

A member of CGT's staff logged the soils encountered in the test pits in general accordance with the Unified Soil Classification System (USCS). An explanation of the USCS is provided on the attached Soil Classification Criteria and Terminology, Figure 3. Logs of the test pits are presented on the attached Figures 4 through 6. Elevations indicated on the test pit logs were based on an assumed elevation of 100 feet at top of asphalt at the centerline of the north terminus of Quail Run Avenue. Elevations shown on the logs should be considered approximate.

6.0 SUBSURFACE MATERIALS

6.1 Soils

We encountered the following subsurface materials within the test pits:

Silt Topsoil (OL): Silt topsoil was encountered at the surface of the test pits and extended to depths of about ⅔ foot bgs. The silt topsoil was generally soft to medium stiff, dark brown, moist, and rooted.

Silt (ML): Silt with gravel and sand was encountered beneath the topsoil within the test pits and extended to depths ranging from about 3 to 3½ feet bgs. The silt was generally medium stiff to stiff, brown, and moist to wet. The gravel content was round, fine to coarse, and included cobbles (up to 8-inch diameter). The sand content was fine-grained.

Silty Gravel (GM): Silty gravel was encountered beneath the silt and extended to the full depths explored. The silty gravel was generally medium dense to very dense, brown, moist to wet, and contained sand. The gravel was round, fine to coarse, and included cobbles (up to 10-inch diameter).

No caving was observed within the depths explored on June 14, 2013. Subsurface materials encountered in the test pits are described in detail on the attached Test Pit Logs, Figures 4 through 6.

6.2 Groundwater

Groundwater was encountered at depths of about 4 and 3¼ feet bgs within the test pits TP-1 and TP-2, respectively, advanced on June 14, 2013. Groundwater was not encountered within the depth explored in test pit TP-3. To determine approximate regional groundwater levels in the area, we researched well logs available at the Oregon Water Resources Department (OWRD) website for wells located within Section 20, Township 2 South, Range 3 East. Our review indicated that groundwater levels in the area varied with surface elevations and were at depths as shallow as 11 feet bgs. It should be noted that groundwater levels vary with local topography. In addition, the groundwater levels reported on the OWRD logs often reflect the purpose of the well, so water well logs may only report deeper, confined groundwater, while geotechnical or environmental borings will often report any groundwater encountered, including shallow, unconfined groundwater. Therefore, the levels reported on the OWRD well logs referenced above are considered generally indicative of local water levels and may not reflect actual groundwater levels at the site.

We anticipate that groundwater levels will fluctuate due to seasonal and annual variations in precipitation, changes in site utilization, or other factors. Additionally, the on-site silt (ML) is conducive to formation of perched groundwater.

7.0 INFILTRATION TESTING

CGT performed two infiltration tests, IT-1 and IT-2, at depths of about 3½ feet bgs in test pits TP-2 and TP-3. The infiltration tests were performed using the open test pit method due to the presence of coarse, dense gravels at the test depths. The subsurface materials at the test depths and the approximate test pit dimensions of the bases of the test pits are shown in the table below.

Table 1: Infiltration Test Depth & Material

Test Location	Test Depth	Subsurface Material at the Test Depth	Dimensions at Base of Test Pit
TP-2/IT-1	3½ feet bgs	Silty Gravel (GM)	38 inches by 38 inches
TP-3/IT-2	3½ feet bgs	Silty Gravel (GM)	42 inches by 38 inches

We soaked the soils at the base of the test pits by placing about 6 inches of water within each test pit. The soils were allowed to soak for 4 hours. During the last hour of the soaking period, the water level was monitored at 30-minute intervals. During the final hour of the soaking period, no discernible drop in the water level was observed (less than 1/16 inch total). After the soaking period, we reviewed preliminary findings with our client at the site. Mr. Martinak decided to terminate the tests given the results during the final hour of the soaking period.

8.0 DISCUSSION

As indicated in Section 7.0 of this report, we did not observe discernible infiltration into the subsurface materials at the tests depths and locations described. As described in Section 6.2, groundwater was encountered at depths ranging from about 3¼ to 4 feet bgs within two of the test pit explorations. It is recommended that the infiltration system designer consult the appropriate design manual prior to proceeding with infiltration system design. Design of stormwater management plans will rest with the others. If alternative infiltration test locations and/or depths are considered, CGT would be pleased to perform supplemental field investigation and testing at the site.

9.0 LIMITATIONS

We have prepared this report for use by the owner/developer and other members of the design and construction team for the proposed development. The opinions and test results contained within this report are not intended to be, nor should they be construed as a warranty of subsurface conditions, but are forwarded to assist in the planning and design process.

We have provided test results based on our observations and testing that indicate the soil conditions at the time of our testing at only those specific locations and only to the depths penetrated. These observations do not necessarily reflect soil types, strata thickness, or water level variations that may exist at the site. If subsurface conditions vary from those encountered in our exploration, CGT should be alerted to the change in conditions so that we may provide additional observations, if necessary. Observation by experienced geotechnical personnel should be considered an integral part of the construction process.

The owner/developer is responsible for insuring that the project designers and contractors implement our test results. When the design has been finalized, we recommend that the design and specifications be reviewed by our firm to see that our findings have been interpreted and implemented as intended. If design changes are made, we request that we be retained to review our conclusions and to provide a written modification or verification.

The scope of our services does not include services related to construction safety precautions. This report is not intended to direct the contractor's methods, techniques, sequences, or procedures, except as specifically described in our report for consideration in design.

Within the limitations of scope, schedule, and budget, our services have been executed in accordance with the generally accepted practices in this area at the time this report was prepared. No warranty or other conditions expressed or implied should be understood. This report is subject to review and should not be relied upon after a period of 3 years.

We appreciate the opportunity to serve as your geotechnical consultant on this project. Please contact us if you have any questions.

Sincerely,
CARLSON GEOTECHNICAL

Kyle Smetana, EIT
Geotechnical Project Manager
ksmetana@carlsontesting.com

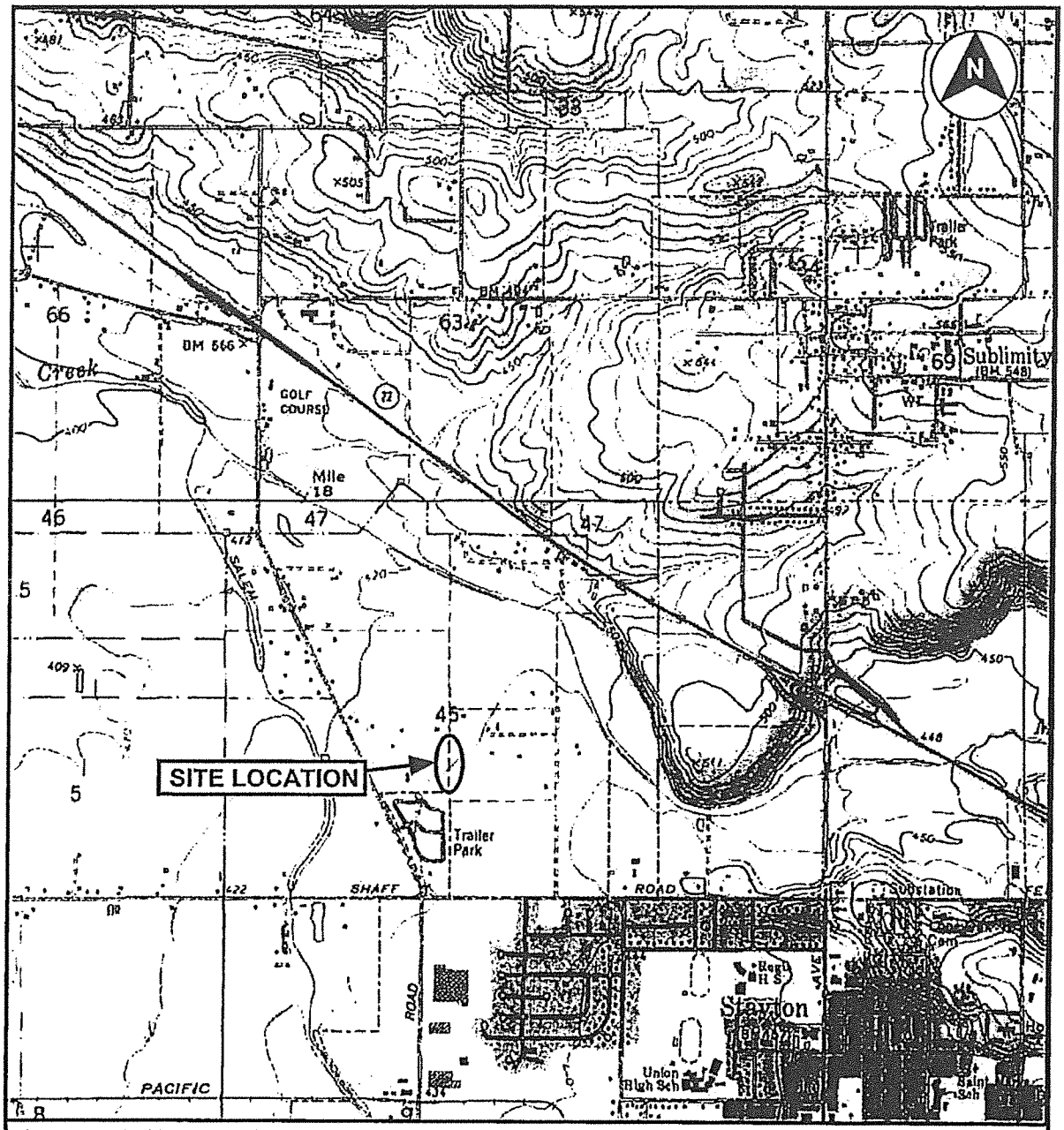
Brad M. Wilcox, P.E., G.E.
Senior Geotechnical Engineer
bwilcox@carlsontesting.com

Attachments: Site Location, Figure 1
Site Plan, Figure 2
Soil Classification Criteria and Terminology, Figure 3
Test Pit Logs, Figures 4 through 6

Doc ID: G:\GEOTECH\PROJECTS\2013 Projects\Phillips Subdivision - Stayton\Report G1303873.doc

PHILLIPS SUBDIVISION PHASE 3 INFILTRATION TESTING - STAYTON, OR

SITE LOCATION



Map created with TOPO!™, © 2006 National Geographic Holdings
USGS 7.5 Minute Topographic Map Series, Damascus, OR Quadrangle.

Scale 1 Inch = 2,000 feet

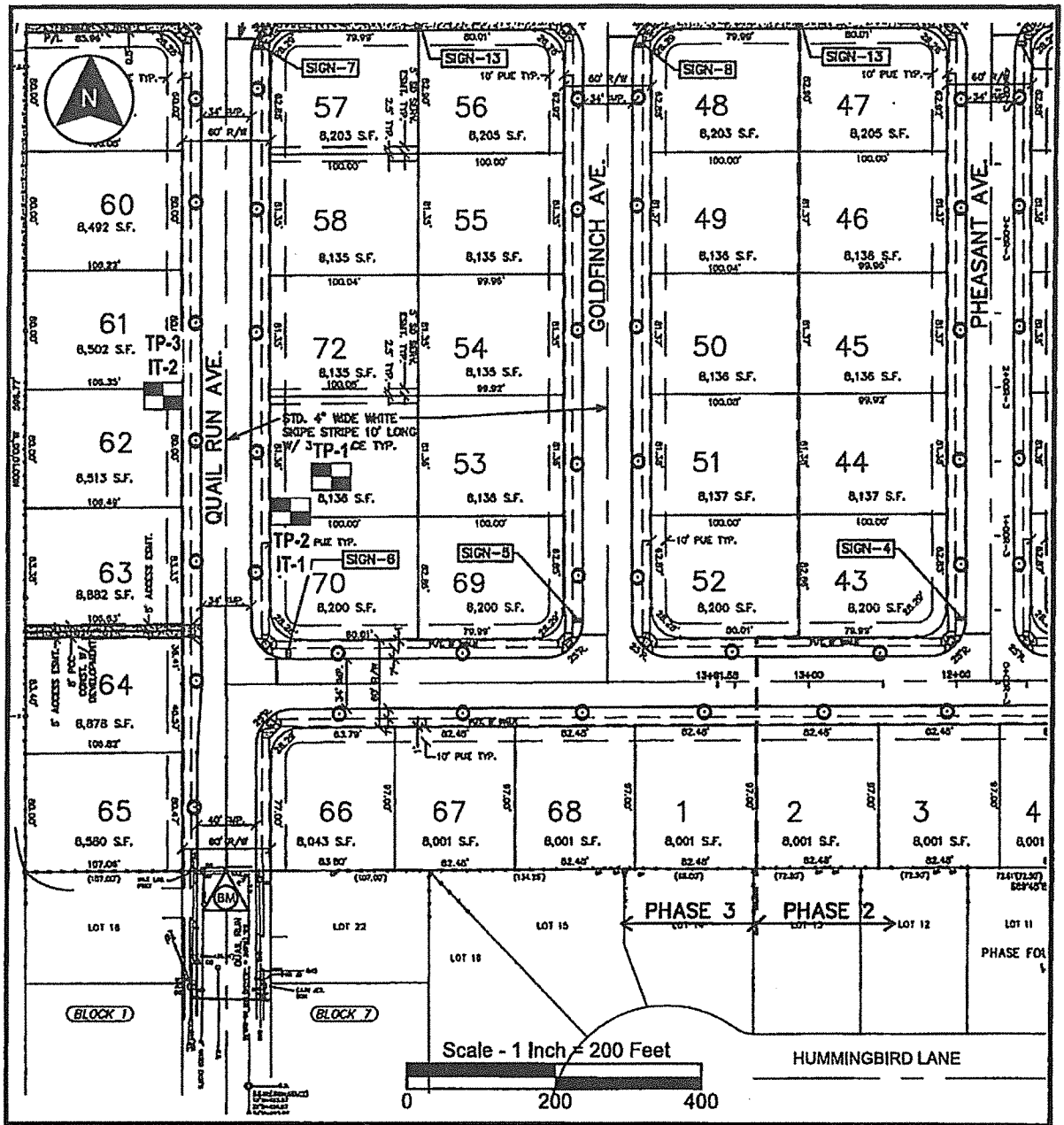
0 2000 4000

Township 2 South, Range 3 East, Section 20 Willamette Meridian

Carlson Geotechnical *P.O. Box 23814* *Tigard, Oregon 97281*	CGT Job No. G1303873	FIGURE 1

PHILLIPS SUBDIVISION PHASE 3 INFILTRATION TESTING - STAYTON, OR

SITE PLAN



NOTES: Drawing based observations made while on site and "Subdivision Plan" (revised date July 14, 2008) prepared by Westech Engineering, Inc. Exploration locations should be considered approximate.

LEGEND

TP-2 / IT-1 — Approximate location of test pit exploration and/or infiltration test.

BM — Referenced elevation benchmark - Assumed 100-foot elevation at the centerline of the terminus of Quail Run Avenue.

CGT Job No. G1303873

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Tigard, Oregon 97281

FIGURE 2

PHILLIPS SUBDIVISION PHASE 3 INFILTRATION TESTING - STAYTON, OR
SOIL CLASSIFICATION CRITERIA AND TERMINOLOGY

Classification of Terms and Content

NAME : MINOR Constituents (12-50%); MAJOR Constituents (>50%); Slightly (5-12%)
Relative Density or Consistency
Color
Moisture Content
Plasticity
Trace Constituents (0-5%)
Other: Grain Shape, Approximate gradation, Organics, Cement, Structure, Odor...
Geologic Name or Formation: Fill, Willamette Silt, Till, Alluvium...

USCS Grain Size

Fines		<#200 (.075 mm)
Sand	Fine	#200 - #40 (.425 mm)
	Medium	#40 - #10 (2 mm)
	Coarse	#10 - #4 (4.75)
Gravel	Fine	#4 - 0.75 inch
	Coarse	0.75 inch - 3 inches
Cobbles		3 to 12 inches; scattered <15% est., numerous >15% est.
Boulders		> 12 inches

Relative Density or Consistency

Granular Material		Fine-Grained (cohesive) Materials				
SPT N-Value	Density	SPT N-Value	Torvane tsf Shear Strength	Pocket Pen tsf Unconfined	Consistency	Manual Penetration Test
		<2	<0.13	>0.25	Very Soft	Thumb penetrates more than 1 inch
0 - 4	Very Loose	2 - 4	0.13 - 0.25	0.25 - 0.50	Soft	Thumb penetrates about 1 inch
4 - 10	Loose	4 - 8	0.25 - 0.50	0.50 - 1.00	Medium Stiff	Thumb penetrates about 1/4 inch
10 - 30	Medium Dense	8 - 15	0.50 - 1.00	1.00 - 2.00	Stiff	Thumb penetrates less than 1/4 inch
30 - 50	Dense	15 - 30	1.00 - 2.00	2.00 - 4.00	Very Stiff	Readily indented by thumbnail
>50	Very Dense	>30	>2.00	>4.00	Hard	Difficult to indent by thumbnail

Moisture Content

Dry: Absence of moisture, dusty, dry to the touch
Damp: Some moisture but leaves no moisture on hand
Moist: Leaves moisture on hand
Wet: Visible free water, likely from below water table

	Plasticity	Dry Strength	Dilatancy	Toughness
ML	Non to Low	Non to Low	Slow to Rapid	Low, can't roll
CL	Low to Med.	Medium to High	None to Slow	Medium
MH	Med to High	Low to Medium	None to Slow	Low to Medium
CH	Med to High	High to V. High	None	High

Structure

Stratified: Alternating layers of material or color >6 mm thick
Laminated: Alternating layers < 6 mm thick
Fissured: Breaks along definite fracture planes
Slickensided: Striated, polished, or glossy fracture planes
Blocky: Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lenses: Has small pockets of different soils, note thickness
Homogeneous: Same color and appearance throughout

Unified Soil Classification Chart (Visual-Manual Procedure) (Similar to ASTM Designation D-2488)

Major Divisions			Group Symbols	Typical Names
Coarse Grained Soils: More than 50% retained on No. 200 sieve	Gravels: 50% or more *retained* on the No. 4 sieve	Clean Gravels	GW	Well graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly-graded gravels and gravel-sand mixtures, little or no fines
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sands: more than 50% *passing* the No. 4 Sieve	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly-graded sands and gravelly sands, little or no fines
		Sands with Fines	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
Fine-Grained Soils: 50% or more Passes No. 200 Sieve	Silt and Clays Low Plasticity Fines		ML	Inorganic silts, rock flour, clayey silts
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
			OL	Organic silt and organic silty clays of low plasticity
	Silt and Clays High Plasticity Fines		MH	Inorganic silts, clayey silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck, and other highly organic soils

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CGT Job No. G1303873

FIGURE 3

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7185 SW Sandburg St, Suite 110
Tigard, OR 97281
Telephone: 503-601-8250
Fax: 503-601-8254

FIGURE 4

Test Pit TP-1

CLIENT Emery & Sons Construction - Bill Martinak
PROJECT NAME Phillips Subdivision Phase 3 Infiltration Testing
PROJECT NUMBER G1303873
PROJECT LOCATION Quail Run Avenue - Stayton, OR
DATE STARTED 6/14/13
ELEVATION DATUM See Figure 2
EXCAVATION CONTRACTOR Emery & Sons
GROUND ELEVATION 97 ft
EXCAVATION METHOD Test Pit
GROUND WATER LEVELS:
LOGGED BY Kyle Smetana CHECKED BY Brad Wilcox
▽ SEEPAGE 5.3 ft / Elev 91.8 ft
NOTES Case 580 Super L back-hoe
▽ 0.5hrs AFTER EXCAVATION 4.0 ft / Elev 93.0 ft

ELEVATION (ft)	GRAPHIC LOG	U.S.C.S.	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ PL LL MC ☐ FINES CONTENT (%) ☐ 0 20 40 60 80 100
		OL	**SILT TOPSOIL:** Soft to medium stiff, dark brown, moist, and rooted.		0.0						
95		ML	**SILT with gravel and sand:** Medium stiff to stiff, brown, and moist to wet. Gravel was round, fine to coarse, and included cobbles (up to 8-inch diameter). The sand was fine-grained.		2.5						
		GM	**SILTY GRAVEL with sand and cobbles:** Medium dense to dense, brown, and moist to wet. Gravel was round, fine to coarse, and included cobbles (up to 10-inch diameter).	▽	5.0						
			Groundwater encountered at about 5¼ feet bgs.	▽							
			Dense to very dense below about 6 feet bgs.								
90			-Test pit terminated at about 7 feet bgs due to practical refusal on dense to very dense gravels. -No caving observed within depth explored. -Test pit loosely backfilled with cuttings by Emery & Sons upon completion.		7.5						

CGT BOREHOLE - GRAPHIC LAB G1303873.GPJ GINT US.GDT 6/25/13

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Telephone: 503-601-8250
Fax: 503-601-8254

FIGURE 5

Test Pit TP-2

CLIENT Emery & Sons Construction - Bill Martinak
PROJECT NAME Phillips Subdivision Phase 3 Infiltration Testing
PROJECT NUMBER G1303873
PROJECT LOCATION Quail Run Avenue - Stayton, OR
DATE STARTED 6/14/13
ELEVATION DATUM See Figure 2
EXCAVATION CONTRACTOR Emery & Sons
GROUND ELEVATION 97 ft
EXCAVATION METHOD Test Pit & Infiltration Test
GROUND WATER LEVELS:
LOGGED BY Kyle Smetana CHECKED BY Brad Wilcox
SEEPAGE —
NOTES Case 580 Super L back-hoe
▽ 0.5hrs AFTER EXCAVATION 3.5 ft / Elev 93.5 ft

ELEVATION (ft)	GRAPHIC LOG	U.S.C.S.	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ / PL LL MC / □ FINES CONTENT (%) □ 0 20 40 60 80 100
		OL	**SILT TOPSOIL:** Soft to medium stiff, dark brown, moist, and rooted.		0.0						
95		ML	**SILT with gravel and sand:** Medium stiff to stiff, brown, and moist to wet. Gravel was round, fine to coarse, and included cobbles (up to 8-inch diameter). The sand was fine-grained.		2.5						
		GM	**SILTY GRAVEL with sand and cobbles:** Medium dense to dense, brown, and moist to wet. Gravel was round, fine to coarse, and included cobbles (up to 10-inch diameter).	▽ ▽	5.0						
90			-Infiltration test IT-1 performed at about 3½ feet bgs. -Test pit terminated at about 3½ feet bgs. -No caving observed within depth explored. -Test pit loosely backfilled with cuttings by Emery & Sons upon completion.		7.5						

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Tigard, OR 97281
Telephone: 503-601-8250
Fax: 503-601-8254

FIGURE 6

Test Pit TP-3

CLIENT Emery & Sons Construction - Bill Martinak
PROJECT NAME Phillips Subdivision Phase 3 Infiltration Testing
PROJECT NUMBER G1303873
PROJECT LOCATION Quail Run Avenue - Stayton, OR
DATE STARTED 6/14/13
ELEVATION DATUM See Figure 2
EXCAVATION CONTRACTOR Emery & Sons
GROUND ELEVATION 98 ft
EXCAVATION METHOD Test Pit & Infiltration Test
GROUND WATER LEVELS:
LOGGED BY Kyle Smetana CHECKED BY Brad Wilcox
SEEPAGE —
NOTES Case 580 Super L back-hoe
AFTER EXCAVATION —

ELEVATION (ft)	GRAPHIC LOG	U.S.C.S.	MATERIAL DESCRIPTION	GROUNDWATER	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	▲ SPT N VALUE ▲ / PL LL MC / ☐ FINES CONTENT (%) ☐ 0 20 40 60 80 100
		OL	**SILT TOPSOIL:** Soft to medium stiff, dark brown, moist, and rooted.		0.0						
		ML	**SILT with gravel and sand:** Medium stiff to stiff, brown, and moist to wet. Gravel was round, fine to coarse, and included cobbles (up to 8-inch diameter). The sand was fine-grained.								
95		GM	**SILTY GRAVEL with sand and cobbles:** Medium dense to dense, brown, and moist to wet. Gravel was round, fine to coarse, and included cobbles (up to 10-inch diameter).		2.5						
			-Infiltration test IT-2 performed at about 3½ feet bgs. -Test pit terminated at about 3½ feet bgs. -No groundwater or caving observed within depth explored. -Test pit loosely backfilled with cuttings by Emery & Sons upon completion.		5.0						
					7.5						

Keith Campbell

From: Bill Martinak [Bill.Martinak@emeryandsons.com]
Sent: Friday, June 28, 2013 9:41 AM
To: Steve Ward
Subject: Re: Phillips Subdivision perc tests
Attachments: image001.png

Steve,
I agree that the perk test was a waste. When I met the tech on site I suggested that we do the test as far north as possible as it was obvious that the outlet from Quail Run was still feeding water to the area. I should have INSISTED on digging further north. I am confident we would get better results. I will dig some of my own test holes this weekend closer to the north property line.
I need to get Carlson signed up with a contract to do compaction testing. I'm not sure exactly what we did on phase I. I need to get moving on filling the open ditches we dug for storm outlets from Phase I and get the crusher to work next week. Can you tell Carlson what to include in their scope?
I know Marvin has everything done except the detention pond. I don't know if Dave K will give me a permit while we figure out plan B or not.
I'll let you know on Monday what I find with more test pits over the weekend.
Bill

Sent from my iPad

On Jun 28, 2013, at 6:46 AM, "Steve Ward" <sward@westech-eng.com> wrote:

> Bill,
> This report is extremely damaging to our cause. If I were the City, I would not allow additional development without the new SD outlet to Mill Creek. There is nothing in this report that I can use to satisfy the City. How do you wish to proceed?
>
> Steven A. Ward
> Westech Engineering Inc.
> 3841 Fairview Industrial Dr SE

From: Steve Ward
Sent: Friday, June 28, 2013 6:46 AM
To: 'Bill Martinak'
Subject: FW: Phillips Subdivision perc tests
Attachments: Report G1303873.pdf

Bill,
This report is extremely damaging to our cause. If I were the City, I would not allow additional development without the new SD outlet to Mill Creek. There is nothing in this report that I can use to satisfy the City. How do you wish to proceed?

Steven A. Ward
Westech Engineering Inc.
3841 Fairview Industrial Dr SE
Suite 100
Salem, OR 97302
Office Phone 503-585-2474
Mobile Phone 503-931-3460

From: Kyle Smetana [mailto:ksmetana@carlsontesting.com]
Sent: Wednesday, June 26, 2013 2:07 PM
To: Bill Martinak; Brad Wilcox
Cc: Steve Ward
Subject: RE: Phillips Subdivision perc tests

Bill,
I sent our report yesterday afternoon. I have attached it here as well.

Thank You,
Kyle Smetana, E.I.T.
Geotechnical Project Manager
ksmetana@carlsontesting.com
503-320-4494

From: Bill Martinak [mailto:Bill.Martinak@emeryandsons.com]
Sent: Wednesday, June 26, 2013 2:03 PM
To: Brad Wilcox
Cc: Kyle Smetana; Steve Ward
Subject: RE: Phillips Subdivision perc tests

Brad,
When can I expect the results?
Bill

Bill Martinak | President
Main: 503.588.7576 | Fax: 503.371.6637 | Cell: 503.931.5261 | Bill.Martinak@EmeryandSons.com

Dan,
I would like to schedule a pre-construction meeting for July 23rd. Please let me know if this date is available.
Bill

Bill Martinak | President
Main: 503.588.7576 | Fax: 503.371.6637 | Cell: 503.931.5261 | Bill.Martinak@EmeryandSons.com

Emery & Sons Construction
3831 Fairview Dr SE | PO Box 4109| Salem, OR 97302

From: Dan Fleishman [mailto:DFleishman@ci.stayton.or.us]
Sent: Tuesday, July 09, 2013 2:19 PM
To: Dave Kinney; Steve Ward; Ryan Ward; Bill Martinak
Cc: Mike Brash; jashley@ashleyengr.com
Subject: RE: Phillips Subdivision Plans PDF

Dave's email below should serve as the receipt indicating the plans were submitted today. This email should serve as reminder of the process and timeframe for reviewing the plans. As outlined in Section 17.34.060.2 of the Stayton Municipal Code, the plans will be forwarded to the City Engineer for review and approval. Within 14 days of the submittal the City Engineer shall determine if the plans are complete. Within 21 days of determining the construction plans are complete, the City Engineer shall determine whether the construction plans are in conformance with the City's requirements. If any portion of the plans are not in conformance with the requirements, Bill and Steve will be notified in writing of any necessary changes. Once the City Engineer has determined that the plans conform to the requirements, Bill and Steve will be notified as to how many sets of plat to provide for the City Engineer's signature. Once the approved construction plans are signed by the City Engineer, the applicant is authorized to schedule a preconstruction conference with the applicant, applicant's engineer, contractor, City Engineer, and City Inspector prior to commencement of construction.

Dan Fleishman
Director of Planning and Development
362 N Third Avenue
Stayton , OR 97383
ph (503) 769-2998
fax (503) 767-2134

From: Dave Kinney
Sent: Tuesday, July 09, 2013 1:00 PM
To: 'Steve Ward'; Ryan Ward; 'Bill Martinak'
Cc: Mike Brash; 'jashley@ashleyengr.com'; Dave Kinney; Dan Fleishman
Subject: RE: Phillips Subdivision Plans PDF

Bill & Steve:

Thank you for the .pdf drawings.

I will send the plans to City Engineer John Ashley and we will schedule our internal plan review. John will be the city's contact person for the design review, so it does not cause any confusion with multiple city people asking questions. I will have John direct design /engineering questions to Steve Ward. Other questions will go to Bill. Mike Brash will serve as the City's inspector on the project. When construction starts, I assume Ryan will be Mike's contact.

A few quick questions before we get started:

1. Bill, you indicated Steve may provide some additional calcs or test results for the detention area. What and When?
2. What is your proposed construction schedule for Phase 2A?
3. If Phase 2A is before Phase 2B, what improvements will be built outside 2A area? Water line loop to Quail Run? Detention basin?? Sanitary sewer??
4. What is your proposed construction schedule for Phase 2B?
5. Will you wait for completion of construction before recording one or both final plat(s)?

Dave Kinney
City of Stayton Public Works

From: Steve Ward [mailto:sward@westech-eng.com]
Sent: Tuesday, July 09, 2013 11:32 AM
To: Ryan Ward; 'Bill Martinak'; Dave Kinney ; Kyle Smetana; Leslie Steele
Subject: FW: Phillips Subdivision Plans PDF

All,
Attached below is a link to allow you to download PDF drawings of Phillips Subdivision. Please let me know if you have any questions.

Steven A. Ward
Westech Engineering Inc.
3841 Fairview Industrial Dr SE
Suite 100
Salem , OR 97302
Office Phone 503-585-2474
Mobile Phone 503-931-3460

From: Engineer
Sent: Tuesday, July 09, 2013 11:16 AM
To: Steve Ward
Subject: Phillips Subdivision Plans PDF

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07/10/13

Carlson Geotechnical

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TESTING-
Infiltration

CGT No.: G1303873A
Permit No.: Unavailable

Geotechnical Field Report

Project:	Phillips Subdivision Phase III – Additional Infiltration Test	Date Covered:	July 10, 2013
Address:	Junco Street & Cardinal Avenue – Stayton, Oregon	Person:	Kyle Smelana, EIT
Purpose of Visit:	Perform an infiltration test	Weather:	Sunny, 80°F
Area of Site:	Northwest quadrant of site	Arrival:	8:30 a.m.
Requested By:	Bill Martinak of Emery & Sons Construction, Inc. (Emery)	Departure:	2:30 p.m.

I met with Brad of Emery on site. The purpose of my visit was to perform an additional infiltration test within the northwest quadrant of the site. CGT previously performed two infiltration tests (IT-1 and IT-2) at the site, the results of which are described in our referenced Report of Infiltration Testing, dated June 25, 2013. The following summarizes my observations during today's site visit.

Test Pit Exploration

When I arrived on site, Brad indicated that test pit excavations performed by Emery (prior to my arrival on site) revealed groundwater was present at depths of about 6 to 8 feet below ground surface (bgs) in the vicinity of Lots 56, 57, and 59. CGT was not on site to observe excavation of those tests pits. Based on the results of those test pits, Bill Martinak of Emery requested that CGT perform an additional infiltration test in the vicinity of these lots.

I observed as Brad excavated a test pit (designated at TP-4) to a depth of about 3½ feet bgs. The test pit was located about 1,030 feet west of the intersection of Junco Street and Cardinal Avenue. The infiltration test location was determined based on measurements from existing site features (roadways, etc.) and should be considered approximate. The base of the test pit measured about 34 inches by 42 inches. Silt topsoil (OL) with roots was encountered at the surface of the test pit and extended to a depth of about ½ foot bgs. The topsoil was underlain by native silt (ML) with gravel that extended to a depth of about 3 feet bgs. The silt with gravel was underlain by native silty gravel (GM) with sand and cobbles (up to about 8 inches in diameter).

Infiltration Test

I performed one infiltration test, designated as IT-3, at a depth of about 3½ feet bgs in test pit TP-4. The infiltration test was performed using the open test pit method due to the presence of coarse, dense gravels at the test depth. The subsurface materials at the test depth consisted of native silty gravel with cobbles.

I soaked the soils at the base of the test pit by placing about 6 to 8 inches of water within the test pit. The water level was maintained and the soils were allowed to soak for 4 hours. After the soaking period, I measured the drop in water level at approximate 10-minute intervals for a total of about 40 minutes. The results of the infiltration test, including raw infiltration rates, are shown below.

Trial	Time (minutes)	Drop (inches)	Infiltration Rate[1] (inches/hour)
1	10	1⅝	5⅝
2	10	1½	6¼
3	10	¾	4½
4	10	1⅛	4⅝

[1]Calculated infiltration rates do not include any safety or correction factors.

Geotechnical Review

As indicated in the preceding section, we calculated a raw infiltration rate of about 4⅝ inches per hour at a depth of about 3½ feet bgs in IT-3. This infiltration rate does not include any safety or correction factors. It is recommended the infiltration system designer consult the appropriate design manual in order to (1) assign appropriate safety/correction factors to calculate the design infiltration rate for the infiltration system and (2) determine if special considerations are

required for design recognizing the reported presence of groundwater at depths as shallow as 6 feet bgs. Once the design is completed, we recommend the infiltration system design (provided by others) and locations be reviewed by CGT. If the locations and/or depths of the systems change from what was indicated at the time of our fieldwork, CGT should be contacted to review the proposed system.

Closure
Today's observations and test results were reviewed with Bill of Emery and Steve Ward, P.E. of Westech Engineering via email on July 11, 2013. Please contact the undersigned with any questions regarding this field report.

Kyle Smetana, EIT
Geotechnical Project Manager
ksmetana@carlsontesting.com

Brad M. Wilcox, P.E., G.E.
Senior Geotechnical Engineer
bwilcox@carlsontesting.com

Note: The observations of existing conditions at the time of our site visit were based solely on visual methods. Our reports pertain to the locations observed at the time of our visit only. Information contained herein is not to be reproduced, except in full, without prior authorization from this office. The information contained in this report is provided subject to all terms and conditions of CGT's General Conditions in effect at the time this report is prepared. No party other than those to whom CGT has distributed this report shall be entitled to use or rely upon the information contained in this document.

ATTACHMENTS: None

DISTRIBUTION: Emery & Sons Construction, Inc., Bill Martinak – Email: bill.martinak@emeryandsons.com
Westech Engineering, Steve Ward – Email: sward@westech-eng.com

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